WE CLAIM:

1. A non-naturally occurring nucleic acid molecule comprising a portion which encodes a truncated ultraviolet damage endonuclease (Uve1p), said truncated Uve1p characterized by an amino acid sequence extending from a position between 329 and 479 as given in SEQ ID NO:2 and extending through amino acid 828 of SEQ ID NO:2.

2. The non-naturally occurring nucleic acid molecule of claim 1 encoding a stable truncated Uve1p characterized by an amino acid sequence as given in SEQ ID NO:2, amino acids 330 to 828.

3. The non-naturally occurring nucleic acid molecule of claim 1 encoding a stable truncated Uve1p characterized by an amino acid sequence as given in SEQ ID NO:2, amino acids 458 to 828.

4. The non-naturally occurring nucleic acid molecule of claim 1 encoding a stable truncated Uve1p characterized by an amino acid sequence as given in SEQ ID NO:2, amino acids 518 to 828.

5. The non-naturally occurring nucleic acid molecule of claim 3 encoding a stable truncated Uve1p, wherein said stable truncated Uve1p is encoded by a nucleotide sequence as given in SEQ NO:3.

6. The non-naturally occurring nucleic acid molecule of claim 1, wherein said nucleic acid molecule is a vector molecule.

7. A substantially purified stable truncated UV damage endonuclease (Uve1p) wherein said Uve1p has amino acid sequence as given in SEQ ID NO:2, wherein its amino-terminus is

between about amino acid 329 and about amino acid 479, and extends through amino acid 828 of SEQ ID NO:2.

8. The substantially purified stable truncated Uve1p of claim 7 wherein its amino acid sequence is as given in SEQ ID NO:2, amino acid 458 through amino acid 828.

9. The substantially purified stable truncated Uve1p of claim 8 further comprising a polypeptide portion identified by an amino acid sequence as given in SEQ ID NO:8 covalently joined at its amino terminus.

10. The substantially purified stable truncated Uve1p of claim 7 wherein said Uve1p has an amino acid sequence as given in SEQ ID NO:2, amino acid 458 through amino acid 828.

11. The substantially purified stable truncated Uve1p of claim 10 further a polypeptide portion identified by an amino acid sequence as given in SEQ JD NO:8 covalently joined at its N-terminus.

12. A composition comprising a substantially purified stable truncated Uve1p of claim 7 and a pharmacologically acceptable carrier.

13. The composition of claim 12 wherein said truncated Uve1p has an amino acid sequence as given in SEQ ID NO:4.

14. The composition of claim 12 which is formulated for topical application to skin of a human or an animal.

15. The composition of claim 12 which is formulated for internal use in a human or an animal.

16. A method for cleavage of a double-stranded DNA molecule characterized by a distorted structure, wherein said distorted structure results from ultraviolet radiation damage, a photoproduct, an abasic site, mismatched nucleotide pairing, a platinum diadduct, an intercalated molecule, an insertion deletion loop of five or fewer nucleotides or alkylation of a nucleotide or a uracil residue resulting from deamination of a cytosine residue, said method comprising the step of contacting a DNA molecule characterized by a distorted structure with a broadly specific DNA damage endonuclease selected from the group of endonucleases selected from the group consisting of an endonuclease identified by the amino acid sequence as given in SEQ ID NO:2, amino acids 230 to 828; a truncated stable truncated Uve1p identified by the amino acid sequence given in SEQ ID NO:4; the endonuclease identified by the amino acid sequence given in SEQ ID NO:36; the endonuclease identified by the amino acid sequence given in SEQ ID NO:37; the endonuclease identified by the amino acid sequence given in SEQ ID NO:38; the endonuclease identified by the amino acid sequence given in SEQ ID NO:39, under conditions allowing for enzymatic activity of said endonuclease.

17. The composition of claim 16 wherein said truncated Uve1p has an amino acid sequence as given in SEQ ID NO:4.

18. A method for cleavage of a double-stranded DNA molecule characterized by a distorted structure, wherein said distorted structure results from ultraviolet radiation damage, a photoproduct, an abasic site, mismatched nucleotide pairing, a platinum diadduct, an insertion deletion loop, alkylation of a nucleotide, the presence of a uracil residue resulting from deamination of a cytosine residue, said method comprising the step of contacting a DNA molecule characterized by a distorted structure with a broadly specific DNA damage endonuclease selected from the group of endonucleases selected from the group consisting of an endonuclease identified by the amino acid sequence as given in SEQ ID NO:2, amino acids 230 to 828; a truncated stable truncated Uve1p identified by the amino acid sequence given in SEQ ID NO:4; the endonuclease identified by the

amino acid sequence given in SEQ ID NO:36; the endonuclease identified by the amino acid sequence given in SEQ ID NO:37; the endonuclease identified by the amino acid sequence given in SEQ ID NO:38; the endonuclease identified by the amino acid sequence given in SEQ ID NO:39, under conditions allowing for enzymatic activity of said endonuclease.

19. The composition of claim 18 wherein said truncated Uve1p has an amino acid sequence as given in SEQ ID NO:4.

20. The method of claim 16 wherein the ninsertion deletion loop is of four or fewer nucleotides.